

Remarks

Claims 1-22 are pending. Claims 1-17 stand rejected and claims 18-22 have been withdrawn from consideration. By this response, claims 1, 4, 11 and 13 have been amended. Applicants respectfully request reconsideration of the rejected claims in view of the amendments and the following remarks.

Claim Amendments

Claim 1 has been amended to recite that the pulses of accelerated electrons have a dose per pulse of about 10 to about 90 Gy. Claim 11 was amended to recite a dose per pulse range of about 10 to about 40 Gy. Support for these changes is found, for example, on pages 27 and 41 of the specification. Claims 4 and 13 were amended to fix minor typos and errors. No new matter is added by these amendments.

Claim Objection

Claim 4 was objected to for containing a spelling error. Claim 4 has been amended to correct this error and the objection may now be withdrawn.

§ 102 Rejections*Priou*

Claims 1, 2, 5, 6, and 8 stand rejected under 35 USC § 102(e) as being anticipated by Priou (U.S. Patent No. 6,590,009). The Office Action asserts that Priou discloses all of the elements recited in these claims. Applicants respectfully traverse this rejection as applied to the amended claims.

A patent claim is anticipated only if each and every element as set forth in the claim is found in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). As amended, claim 1 is directed to a polymerization method that involves coating a substrate with a polymerizable composition and irradiating the composition with a pulsed beam of electrons having a dose per pulse of about 10 to about 90 Gy, thereby polymerizing the composition. Priou describes a polymerization composition containing

monomers, oligomers and/or polymers with organic functional groups. The crosslinking and/or polymerization is carried out in the presence of an initiator capable of being activated under an electron beam and/or gamma radiation (cols. 1 & 2). Priou, however, does not describe irradiation of a polymerizable composition with a pulse of electrons having a dose per pulse of about 10 to about 90 Gy, as is recited in amended claim 1. Applicants note that the Examiner has not rejected any of the dependent claims that recite a dose limitation based on Priou (i.e., claims 11 and 13).

Since Priou does not disclose all of the elements of amended claim 1, this reference does not anticipate claim 1 nor any of the claims that depend directly or indirectly from claim 1, including claims 2, 5, 6, and 8. Applicants, therefore, respectfully submit that the § 102(e) rejection based on Priou has been overcome and should be withdrawn.

WO 00/04055

Claims 1-8, 10, 14, and 15 stand rejected under 35 USC § 102(b) as being anticipated by WO 00/04055 (“the ‘055 application”). The Office Action asserts that the ‘055 application discloses all of the elements recited in these claims. Applicants respectfully traverse this rejection as applied to the amended claims.

As with Priou, the ‘055 application also fails to describe irradiation of a polymerizable composition with a pulse of electrons having a dose per pulse of about 10 to about 90 Gy, as is recited in amended claim 1. For this reason, the §102 rejection based on this reference should be withdrawn. In addition, Applicants note that even though the electron beam generator described in the ‘055 application has an on-off switch, the machine generates a continuous beam while in operation and thus does not produce a pulsed beam as recited in the claims.

Applicants respectfully submit that the rejection of claims 1-8, 10, 14, and 15 under 35 USC § 102(b) as being anticipated by the ‘055 application has been overcome and should be withdrawn.

§ 103 Rejections

WO 00/04079 in view of Loda

Claims 1-9, 14, 15 stand rejected under 35 USC § 103(a) as being unpatentable over WO 00/04079 (“the ‘079 application”) in view of Loda (U.S. Patent No. 4,163,172). Applicants respectfully traverse this rejection as applied to the amended claims.

In order to establish a *prima facie* case of obviousness, the Patent Office must demonstrate that (1) there is a suggestion or motivation in the prior art to modify or combine reference teachings, (2) one skilled in the art would have had a reasonable expectation of success in making the modification or combination, and (3) the prior art reference(s) disclose all of the claim limitations. The fact that one of ordinary skill in the art would have had the capability to modify the method disclosed in the prior art reference(s) is not sufficient. MPEP 2143.01. The prior art reference(s) must provide a motivation or reason for making the changes. MPEP 2142; *Ex parte Chicago Rawhide Manufacturing Co.*, 226 USPQ 438 (PTO Bd. App. 1984).

As discussed above, claim 1 as amended now recites that the polymerizable composition is irradiated with a pulse of electrons having a dose per pulse of about 10 to about 90 Gy. Neither Loda nor the ‘079 patent describe providing this dose per pulse. Indeed, the Office Action did not reject any of the claims reciting a dose per pulse limitation (i.e. claims 11 and 13) based on this combination of references. Thus, even in combination, these references fail to teach or disclose all of the limitations of claim 1. Amended claim 1 is, therefore, patentable over these references.

Claims 2-9, 14, 15 each depend directly or indirectly from claim 1, and are likewise patentable for the same reasons as claim 1.

The rejection of claims 1-9, 14, 15 under 35 USC § 103(a) as being unpatentable over the ‘079 application in view of Loda has been overcome and should be withdrawn.

Botman

Claims 10-13, 16 and 17 stand rejected under 35 USC § 103(a) as being unpatentable over the ‘079 application in view of Loda (U.S. Patent No. 4,163,172), further in view of Botman

et al (Nuclear Instruments and Methods in Physics Research B 139). Applicants respectfully traverse this rejection as applied to the amended claims.

As previously discussed, the ‘079 application and Loda both fail to teach pulses of accelerated electrons having a dose per pulse between about 10 and about 90 Gy. The Examiner has acknowledged that these references fail disclose a dose per pulse within this range (see Office Action, p. 6). However, the Examiner asserts that Botman provides this missing teaching. In particular, the Examiner states that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used irradiating conditions of Botman et al (which are similar to those of claim 10-13, 16, and 17) for polymerizing acrylic monomer applied to a substrate in a method of WO 00/04079 in view of Loda with the expectation of proving the desired curing, since Botman et al teach that irradiating conditions similar to those of claimed invention may be used for polymerizing MMA monomer applied to a substrate.” (Office Action, p. 6). Applicants disagree.

One of the required elements of *prima facie* obviousness is that the combination of prior art reference(s) asserted by the Examiner must disclose all of the claim limitations. According to the Examiner, Botman describes a dose per pulse between 0.1 – 3 Gy. This clearly falls outside the dose per pulse range recited in amended claim 1. Thus, even in combination, the cited references do not teach or suggest all of the elements recited in claim 1. Since claims 10-13, 16 and 17 all depend directly or indirectly from claim 1, they all include this dose per pulse limitation, and are likewise patentable over the cited references.

The rejection of claims 10-13, 16 and 17 under 35 USC § 103(a) as being unpatentable over the ‘079 application in view of Loda, further in view of Botman has been overcome and should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Reconsideration of the application is requested.

All communications in this case should be direct to the undersigned. If the Examiner believes a telephone discussion would be helpful to resolve any of the outstanding issue in this case, the Examiner is encouraged to call the undersigned at the number listed below.

Respectfully submitted,

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Date

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